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ABSTRACT

This study sought to understand how South African Sotho and Zulu children learn and communicate at home. Data were collected from 80 homes of 5-year-olds through observation and supplemented by audiotaped sessions. The analysis sought to identify the social rules and constraints governing the amount, style, and content of the information transmitted to the child. Qualitative and quantitative analysis revealed that communication was influenced by the variables of age and sex of the communicator, and that these differences were related to seniority and the female gender. In the spontaneous interactions that were observed, children received a greater proportion of information from their peers than from adults. In the audiotaped sessions, which sought to record standardized school-based tasks, older children (especially girls) and adults took on a more active role in interacting with the children. The results suggest that to improve the children's academic achievement, intervention should focus on stimulating the interest and participation of the family members who influence the child. (BAC)

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Zulu and Sotho preschoolers: A study of communication and teaching in the home

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Co-operative Research Programme on Marriage and Family Life

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Early Education Research Unit
HSRC

Co-operative Research Programme on Marriage and Family Life
HG/MF-12
Pretoria
1994

The Co-operative Research Programme on Marriage and Family Life is centred in the Group: Social Dynamics of the Human Sciences Research Council. The emphasis in this programme is on the structure and dynamics of family life, the nature of family disorganization and disintegration, and the nature of changes taking place with regard to family structure and family processes.

In this report the emphasis is on the way preschool children learn and communicate at home.

The opinions expressed in the report are those of the authors and should not necessarily be viewed as those of the Main Committee of the Co-operative Research Programme on Marriage and Family Life.

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EKSERP

In die navorsing waarop hierdie verslag gebaseer is, is kommunikasiedata uit 'n waarnemingstudie van 5-jaar-oue Zoeloe- en Sotho-kinders in 80 huishoudings aangevul met oudiobanddata van meer gestruktureerde leersituasies aan huis van 57 van hierdie kinders. Die besondere fokus van die studie was die tuisbring van idees oor geletterdheid en syferkundigheid by kinders in gemeenskappe waar geletterdheid en skoolopvoeding uit die onlangse verlede dateer en waar skoolopleiding van swak gehalte was. Met behulp van kwantitatiewe en kwalitatiewe ontledings is die maatskaplike reëls en beperkinge geïdentifiseer wat die hoeveelheid, styl en inhoud bepaal van die inligting wat deur gespreksgenote uit die verskillende geslagte en ouderdomme aan die kind oorgedra is. Die ontledings toon dat verskillende ouderdoms- en geslagskategorieë verskillend kommunikeer en dat hierdie verskille sistematies verband hou met senioriteit en geslag. In die gestruktureerde leersituasie was volwasse vroue, en ouer kinders van beide geslagte die hoofbron van inligting vir die kinders. Die twee ouderdomskategorieë se onderrigstyl het egter verskil. Dit het geblyk dat die kommunikasienetwerk in die huis 'n komplekse stelsel met wisselende invloede op die kind is; en hierdie invloede moet in ag geneem word by die beplanning van ingryping om kinders se akademiese prestasies te verbeter.

ABSTRACT

Communication data drawn from an observational study of 5-year-old Zulu and Sotho children in 80 households were supplemented with audiotaped data from a more structured learning situation in the homes of 57 of these children. The particular focus of interest was the introduction of ideas about literacy and numeracy to children in communities where experience with literacy and schooling has a short history, and the schooling has been of poor quality. The analysis was conducted on both quantitative and qualitative lines in order to identify the social rules and constraints governing the amount, style, and content of the information transmitted to the child by different age/sex classes of speech partners. The analysis revealed that quantitatively and qualitatively different age/sex categories communicated differently with the child and these differences were systematically related to seniority and gender. In the structured learning situation, adult women and older children of both sexes were the main source of information to the child, but these age categories differed in teaching style. The communication network in the home emerged as a complex system with varied influences on the child. It is argued that these influences need to be taken into account in planning interventions to improve children's academic achievement.

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1. INTRODUCTION

There is often unacceptably high wastage (drop-out, failure and grade repetition) in the early years of primary schooling in developing countries (Pollitt, 1990). While malnutrition, infection and inadequate school conditions are undoubtedly factors, there is a fundamental paradox that children who are adjudged competent in the home environment do not necessarily transfer this competence to the school environment (Church & Katigbak, 1988). This has focused research attention on the discontinuities in the mode and content of the child's early learning and socialization experience before and during the transition into the formal school system (Weisner, Gallimore & Jordan, 1988). With the undeniable need to identify these discontinuities in order that accommodations and interventions can be made either in the preschool years or in the early years of primary school, communication and learning in the home have been selected for special attention here.

In this report the aim is to investigate the communicatory network in the homes of Zulu and Sotho children as it affects the children themselves. The particular focus of interest is the introduction of ideas about literacy and numeracy to children in communities where experience with formal schooling has been minimal and the schooling of poor quality. Broad observational data were gathered on the everyday home life of 80, 5-year-olds in four different areas of South Africa, and additional audiotaped data were gathered in a more structured learning situation in the homes of 57 of these children. Methods and background information are reported here only in so far as they are germane to the central communication interests of this paper.

Two main hypotheses were investigated. Firstly, the way in which a young child in an extended family system acquires information about his environment is more usefully conceptualized as a network governed by social relationships, than as a simple adult-to-child transfer of information. The assumption based on studies in "western" countries that adults in the family, and usually the mother, are the primary source of information for the preschool child, is not appropriate for the communities studied here which have a different social and cultural history.

Secondly, in communities where literacy and schooling experience is not extensive, information about formal schooling is perforce transmitted to the preschoolers differently from other, more familiar, information in the home.

Both of these hypotheses have a direct bearing on the way in which interventions aimed at facilitating the transition from the home to formal teaching should be conducted. Studies of communication and learning in the homes of children within a particular culture do more, though, and inform local education intervention needs at a particular point in history. Weisner (1984) has used the term "democratic relativism" to denote the broadening of concepts in developmental psychology in order to take into account the diversity of child-rearing patterns, while the work of researchers in non-Western cultures (*cf.* Weisner, 1979, 1984, 1989; Sigman *et al.*, 1988; Konner, 1972; Draper & Cashdan, 1988) has had an impact on debates on key issues in developmental psychology.

Dissatisfaction with the prominent role given to the mother-child dyad in laboratory-based studies of language development has resulted in a greater use of naturalistic home-based studies, with a concomitant rise in interest in the role of siblings (Weisner, 1989; Zukow, 1989; Dunn, 1989) and fathers (Liddell, Henzi & Drew, 1987) in the communicatory experience of the child. Even in so-called nuclear families there are often several individuals in the child's environment who might be termed care-givers because they take responsibility for the child for substantial periods of time (Smith, 1982), but the difficulties children have to assimilate the diverse influences (Lewis, Feiring & Kotsonis, 1984) are compounded in extended systems which are the norm in many non-Western societies. Moreover, cross-cultural studies have taught us that the mother-child dyad clearly has different meanings in the folk psychology of different societies. Consequently, there is a need to develop methods to plot the flow of information in households in order to understand the learning processes familiar to young children in diverse cultures prior to contact with formal schooling.

2. MATERIALS AND METHODS

2.1 Study 1: Observational study

The sample consisted of 40 boys and 40 girls (mean age males 62,4 months, SD 4,05; mean age females 62,8 months, SD 4,26) who were observed at home during their everyday routines. Observations were made of 20 children (10 boys and 10 girls) from each of four different areas of South Africa: two urban townships (Umlazi near Durban, and Mamelodi near Pretoria) and two rural communities (Nqabeni in Southern Natal and Nebo in the Transvaal).

2.1.1 *Sampling method*

Households were selected using a snowball sampling technique in which observers would approach the first house (randomly chosen) for information on where the nearest 5-year-old child lived. From there referrals continued until 20 children were found who fulfilled the criteria for selection. These criteria were: the child had to be five years of age and had to have no history of severe ill health or malnutrition; the child's father had to be employed away from home during the day; and none of the referred children must have played together.

2.1.2 *Data collection*

The nature of the investigation was explained to primary care-givers and parents. Parental consent was given in all cases. Thereafter children were habituated to the presence of a strange observer during two-hour sessions, the total duration ranging from four to eight hours.

Observations were made on checksheets at 30-second intervals which were marked by an electronic bleeper. The observer stayed within two metres of the child at all times. A total of 1 440, 30-second samples (12 hours) were collected on each child (excluding habituation sessions). With a few exceptions, as in the case of illness or unexpected incidents in the home, data were collected over six consecutive weekdays. Interobserver reliability was assessed over a total of 42 hours during four periods approximately four months apart. Percentage agreement on language use was 86,06, 86,13, 86,86 and 92,34 for the four reliability assessments.

2.1.3 *Recording and coding of speech*

The choice of units of analysis was, of course, rooted in the conceptualization of family communication with the child as a network, and a systems approach appeared to be appropriate (Lewis, Feiring & Kotsonis, 1984), identifying the rules and constraints which govern the flow of information to the child. The amount and type of speech exchange for the different age/sex categories of conversation partner were recorded.

Certain conventions were adopted with respect to the recording of speech. Only speech which was concurrent with the bleeper was recorded, and this was coded for the age/sex category of the speech partner and the direction of the speech (i.e. to or from the focal child).

Speech occurring in the immediate environment of the child was regarded as speech to the child if it was made by a member of the group with whom the child was interacting. This excluded, for example, speech within a group of adults in the immediate proximity of the focal child if the child had given no indication of participating in that group. Conversely, speech from any member of the child's interaction group was regarded as speech to the focal child even if it was directed to the group at large. This catered for the fact that children often derive information from listening to other people's conversations (Dunn & Schatz, 1989) and accords with the aim to investigate the influences on the child.

Once an hour the observer scanned the home and its environs and noted all those present. These people were then regarded as potential speech partners for the child. Potential and actual speech partners were classified according to age/sex groups, as adult females and males (over 16 years of age), older girls and/or boys (6-16 years), same-aged girls and boys (3-5 years) and younger girls and boys (0-2 years). Speech with the mother was, however, treated as a separate category from other adult speech. In terms of the selection criteria for the sample, the father was not present at home except for a few isolated and brief periods, and speech with the father was not included in the analysis. Two categories of speech and structure were recorded: commands and information.

2.2 Study 2: Audiotaped study

Additional audiotaped material was collected on a subset of 57 children in the main sample. This subset was derived from the larger sample on an opportunistic basis (Umlazi 13, Mamelodi 8, Nqabeni 19, Lebowa 16). A situation was created which was intended to focus attention on a task specifically related to formal education.

A meeting was arranged with the parents, and permission was obtained to take photographs and audiotape the children's speech. On completion of the data collection, when a small gift and card were presented to the family, the child was given a drawing book and pencil crayons and the observer would say: "We are giving you these because you will be going to school next year. Please show us what you can do with them." A small tape recorder was placed near the child and his friends or family and the observer withdrew out of earshot once the child had settled. After half an hour, or when the child had ceased to use the drawing book, the recorder was removed and the session ended.

2.2.1 *Preparation of data from audiotape for analysis*

The data were transcribed from the audiotapes in the original Zulu or Sotho, and then translated into English by the observer who was present during the recording. Each session was marked off into speech units, corresponding to units of meaning, and these were further categorized according to speech structures, as follows:

(i) Commands: Statements that order an action.
(ii) Information: Information on the task or events in the environment.
(iii) Questions: All questions whether task related or not.
(iv) Threats: Statements which involve intention to harm, injure, or punish.
(v) Criticisms: Statements which involve a negative judgment.
(vi) Disputes: Statements that express arguments, opposition or disagreements.
(vii) Reasons/Explanations: Speech which includes causal thinking.
(viii) Praise: Statements that express approval and admiration.

Intercoder reliability assessments were conducted on 15% of the transcripts by the first and fifth authors, and percentage agreement on the most frequently used categories was as follows: Commands 77,0%, Information 81,5%, and Questions 77,8%. The remaining categories were grouped together because they occurred infrequently, and the agreement in this case was 63,8%.

2.2.2 *Content analysis*

The content of the audiotaped sessions was analyzed according to:

(i) the topics relating to the task at hand;
(ii) responsibility for the child's compliance with the task;
(iii) quality of teaching.

Teaching was broadly defined as instruction, information and comment on the utilization of the writing materials. Utterances which had a teaching content were classified hierarchically into three categories: general performance only (i.e. minimal information), subject matter (i.e. more specific), and information on how a good performance was to be achieved (i.e. most detailed and effective teaching).

The relationship of the primary care-giver to the focal child and her level of formal education were noted.

3. RESULTS

3.1 Study 1: Observational study

3.1.1 General aspects of family life

Biographical data for males and females are shown in Tables 1 and 2 (see Appendix). As indicated by the Kruskal-Wallis statistic in the last column, there were no gender differences in the home circumstances of these children. This fact is reassuring in that it testifies to the random nature of the sample worked on, but it is otherwise unremarkable.

"Dwelling" refers to the type of home the child lived in (thatched hut, corrugated iron shack, or brick house). "Books, newspapers, and toys in home" refers to the number of these items the observer noted in the child's home during data collection. "Water source" describes the nature of water supply to the home (collected from river, or street standpipe, or available from tap indoors). "Sewerage" similarly refers to whether homes had no sewerage facility, or relied on hand-made latrines, or were on main sewerage systems. "Regular daytime meal" codes the type of food children were routinely consuming during observation; "staple" refers to meals consisting entirely of carbohydrate, "protein" to meals that contained a protein form, and "balanced" was coded in cases where children were regularly observed eating a meal containing carbohydrate, fat, and protein. "Rely on subsistence economy" refers to the degree to which the child's domestic unit grew crops for its own consumption. "Family size" describes the number of children and adults living in the domestic unit. "Education primary care-giver" refers to the number of years of schooling the primary care-giver had completed.

The tables indicate that children were drawn from poor families living in difficult circumstances. The majority of children were living in home-made dwellings that did not have an adequate water supply.

Households were generally large (seven members), with an average of only one member of the household in employment. As the highest level of education per household averaged only seven years, most workers were in menial jobs, and the families were - by comparison with most Euro-American families - very poor indeed. Since most homes consisted of a maximum of four rooms, the level of overcrowding was considerable. Approximately half of the children were being

looked after by their mothers, with a further third being looked after by their grandmothers. Other care-givers were generally an aunt or older sibling.

Approximately a third of the children's homes contained no books or newspapers/magazines. Almost all children had at least one toy - these were almost exclusively home-made. Approximately a third of the households relied on subsistence agriculture on a regular basis, and few of the children were observed eating a balanced meal during the daytime.

Additional general family data indicated that the average level of education for primary care-givers of 5-year-old children was 4,36 years. Care-givers tended to be mature, averaging 37,48 years of age (mothers 32,09, grandmothers 58,44, and other primary care-givers 30,93 years). The child's relationship with his or her primary care-giver tended to be very stable in the sense that the sample (aged five years) had been cared for by the same care-giver for an average period of 4,36 years. Thus, despite difficult home circumstances and extreme poverty, children were most often looked after by mature adults within stable long-term relationships.

The mothers' education levels were low, however, averaging four years of schooling. In this regard, the educational stimulation that children could be expected to achieve from mothers might be low.

In terms of the overall status of these children's homes, it is evident that the quality of their physical environment was quite different from that experienced by most children in industrialized countries. For example, Tizard *et al.* (1988) report that 3% of black British children in their preschool sample had 50 or more children's books at home. In the present sample, only 18% of the households had between two and ten books in general, with no household having more than ten books; no books specifically designed for preschool children were ever observed in the homes of the 80 children studied. Similarly, Bradley and Caldwell (1984) report an average of 11 years of education for the primary care-givers of their black North American HOME cohort, with the corresponding figure for the present sample being four years.

In the light of the fact that variables such as the number of books in the home (Young-Loveridge, 1989), the degree of crowding, and levels of care-taker education (Bradley & Caldwell, 1984) are associated with a range of child outcomes, it might have been reasonable to predict that the present sample of children would exhibit somewhat different patterns of behaviour and interaction in Study 2.

3.1.2 School-related activities in Study 1

As indicated in Table 3 (Appendix), most of the educational stimulation in Study 1 emanated from same-aged peers, themselves not conversant with advanced forms of teaching and educational knowledge. In this respect, although a total of 3% of the children's everyday home activities were school related in this, their last year before school, these activities were unlikely to have been of a mature educational form.

3.1.3 Interaction patterns around the home

As indicated in Table 4 (Appendix), most of the children interacted with a wide variety of individuals. Those children appeared to live in stimulating and varied social worlds, being exposed to partners from all areas of the age/sex domain. The general tendency to describe black South African children as "socially disadvantaged" (see Erickson, 1987; Hennenberg, Warton & Hollinshead, 1987) is almost certainly worth revising or elaborating.

The children spent 26% of their time in language exchange with a variety of speech partners - a proportion which compares favourably with the frequency of language use among Western children (Tizard & Hughes, 1984). Their main speech partners were other children. Eighty-six per cent of the language exchange took place between the focal child and other children. These data indicate the degree to which peers and older children form the core of the focal child's social world, a finding also reported by Reynolds (1989) for black South African children, and by Whiting and Edwards (1988) for African children in general.

In terms of the command:information ratio of speech (Table 10, Appendix), adults issued approximately as many commands as information statements (46%:43% respectively). This differed substantially from the ratio in child-child speech, which heavily favoured the exchange of information (a command:information ratio of 32%:63% - about 1:2 - being found). Thus, although the children lived in a predominantly peer-orientated environment, a large proportion of directives still came from adults.

The fact that the focal children received the larger proportion of information from other children rather than from adults, calls into question the hypothesis of Gay and Cole (1967) that other children do not provide the baseline source for children's information gathering. However, it is important to mention that the

quality of information received from adults may have been considerably higher than that received from other children. However, transcriptions of conversations between groups of adults and children that were made during the observation sessions do not support this possibility (Kvalsvig & Liddell, 1991). The adults were in fact more likely to issue non-contingent responses to children's ongoing activities than were other children.

Thus adults may not have been frequent participants in social and linguistic exchange with young children, but they were nevertheless in regular close proximity and directed children's activities substantially, though they did not provide them with especially contingent information.

3.1.4 Role of mother in speech exchange

This was compared with the roles of other age/sex categories, and the differences in the group means for each measure were tested for significance with the Duncan Multiple Range Test ($p < 0,05$).

The mother was the principal care-giver in the case of 57,5% of the total sample, with grandmothers the principal care-givers for 22,5% of the sample. Mothers ranked eighth in terms of the amount of time they spent in the vicinity of the child, and this is significantly lower than either the adult females or the adult males (Table 5, Appendix). Mothers ranked last in overall communication with the child, and they had significantly less communication with their children than other adult women, or than both sexes of older and same-aged children. In order to determine whether this lack of mother-child communication was a reflection of the relatively small amount of time that mothers spent in the vicinity, ratios of potential and actual partnership were calculated for each child. Mothers ranked sixth on this measure, and significantly lower than both sexes of older and same-aged children, which suggests that even when mothers were present, they did not spend much time conversing with the child, at least not during weekdays.

On the question of whether it is appropriate to consider mother-child dyads as important communication links in these communities, it must be said that although speech with mothers forms only a small part of the daytime speech interchanges of these children, there are strong reasons for considering them as a special category distinct from other adults in the child's environment. The very fact that mothers are present less often than other adults suggests that their primary duty towards 5-year-olds is one of financial support. Their

communication with the child differs from that of other adults in the child's environment on a number of our measures, and data will be presented to illustrate this.

If it is not appropriate to look at language-based learning in the home totally or even principally in terms of mother-child dyadic interaction in these communities, the question arises as to how we **do** represent the communication system as it affects the child. In the past century in South Africa, black communities have undergone upheavals through conquest, industrialization, and discriminatory apartheid laws, so it would be simplistic to expect child socialization to remain organized on the age-stratified lines of the past with each age cohort being instructed by the next oldest cohort in skills appropriate for their age and sex. On the other hand, it is also unlikely that traditional patterns of age-cohort instruction have totally disappeared. Our approach to the analysis of communication pathways in the modern families in our sample has therefore taken age/sex categories of speech partners as the basic units of analysis to examine the network of communication with the child. A number of factors which differentiate between age/sex categories of speech partners have been considered, and the mean difference across categories tested for significance with the Duncan Multiple Range Test at the 5% level of significance.

3.1.5 Relative amount of communication from each age/sex category

The focal child was quite clearly involved in speech partnerships with the peer group of 3 to 5-year-olds more often than any other age group (Table 5). Older children (6 to 16-year-olds) ranked with adult women as the next most frequent speech partners. Younger children (0 to 2-year-olds) were, not surprisingly, the least involved in speech partnerships with the focal child and ranked with adult men as the least frequent speech partners, significantly less frequent than most other age/sex categories. Leaving aside the toddler group, there was a tendency for females to interact more with focal children than with males in each group, but differences between the means were only statistically significant in the case of adults.

3.1.6 Ratio of potential:actual speech partnerships

The extent to which different age/sex categories of people in the vicinity of the focal children were actually involved in communication with the children was

taken as implicit evidence of differential roles and preferences with respect to communication with 5-year-olds. Same-aged females emerged as the age/sex category most likely to enter into conversation with the focal child when they were present in the environment, and the mean ratio was significantly higher for them than for all other categories. Same-aged males ranked with older females and older males as the next most likely to converse with the focal child. Adults of both sexes ranked with younger children as the least likely to converse with 5-year-olds.

3.1.7 Dominant partner in speech interchanges

This was inferred from the balance in the amount of total speech, commands and information statements between the speech partner and the focal 5-year-olds. The differences in means between speech from and speech to a particular age/sex group were tested for significant deviation from zero by using a *t* test, and the results are tabulated in Table 6. There was clear evidence of an age scale here with dominating speech interchanges, with older children maintaining a reciprocity, and 3 to 5-year-olds and 0 to 2-year-olds being more frequently the recipients of 5-year-old speech. In contrast to other adults, mothers maintained a reciprocity with their 5-year-old children, indicating a qualitative difference in the relationship. Broadly speaking, commands to and from the focal child followed the same age structure, being more frequently given by those older than the focal child, and more frequently received by those younger than the focal child. The exception here was adult males who neither issued nor received commands very frequently. Information statements, by contrast, were evenly balanced in speech with most age/sex categories.

3.1.8 Differential roles of controlling and informing children

This was operationally defined as the command/information structure of speech with the focal child. The difference in means between commands received and information received from each age/sex group was tested for significant difference from zero by using a *t* test (see Table 7). In no age/sex category was the number of commands given significantly greater than the number of information statements given to the focal child. For the adults, commands and information statements were balanced, and for all categories of children (with the exception of 0 to 2-year-old males) information statements were given

significantly more often than commands. This implies that while the focal children were not the butt of highly authoritarian speech patterns, social control was clearly vested in adults.

3.1.9 Preference for speech partners from own sex category

The purpose of this analysis (see Table 8, Appendix) was to detect whether there was a tendency for focal children to interact with their own sex, even though, as reported above, females of all ages conversed more with focal children than did males. The toddler age group was omitted from this analysis. The MANOVA demonstrated an overall preference for own sex (Wilks' Lambda = 0,822, F = 5,48, p = 0,002). Both focal girls and focal boys conversed more with adult females than with adult males, but the difference was more marked with focal girls. In the remaining two age groups boys talked more with focal boys, and girls more with focal girls.

3.2 Study 2: Teaching at home

During the audiotaped session parents were more often present than during the observation sessions because observers had requested this; so in this sense the rank ordering of those present in the environment is not comparable with that of the observational study. The audiotaped study did, however, yield other measures which were comparable with the observational measures and indicated how the communication pattern altered in a situation which related to the child's anticipated experiences with writing materials in school (Table 9, Appendix). Whereas 3 to 5-year-olds ranked highest in terms of the actual:potential speech ratio in the observational study, the children of school age came to the fore when it came to the audiotaped sessions with the highest number of speech units per person and per session. They ranked higher than adults on these measures, possibly because they had the most immediate experience of writing and writing materials: the mean level of education for child care-givers was 3,8 years, which indicates that most adult care-givers were not functionally literate. The communication in this teaching task, however, did have an underlying age structure, with older children and adults speaking significantly more than same-aged and younger children per person and per session. Females of all ages spoke significantly more than males (mean utterances per person: female = 25,3, males = 14,1, f = 2,009, p = 0,049).

The sex of the focal child did not appear to make any difference in the mean number of utterances from others (mean per session: females = 41,0, males = 41,7), or the number of utterances from the focal child (females = 18,3, males = 20,9). There was, however, a difference between male and female focal children in sex preferences: female focal children were spoken to more often by females than by males (mean utterances: from females = 30,8, from males = 7, f = 3,34, p = 0,003), whereas male focal children received the same amount of speech from males as from females (mean utterances: from females = 20,4, from males = 20,8).

There are two ways of examining the speech structures utilized by family and friends:

(i) *The characteristic styles of different age/sex categories of speech partners.* This has implications for understanding how the teaching situation varies for groups with different age compositions. In this case, the total occurrence of each speech structure was expressed as a percentage of the total of utterances for that age/sex category of speaker, in order to compare styles (Table 10, Appendix), and the difference between age categories was tested with the Duncan Multiple Range Test (p = 0,05).

(ii) *Communication categories relating to the focal children.* The information statements given by a school-aged child are likely to differ in content from those given by a preschool child, and the value of information for the child will depend on the speaker's experience in the use of writing materials. For this analysis the number of information statements from each age/sex category was expressed as a percentage of the total number of information statements directed at the child, and group mean differences were also tested with the Duncan Multiple Range Test.

3.2.1 Characteristic styles

Commands, information statements and questions accounted for 80% of utterances for all groups. There were no significant differences between the sexes in any age of the group. The utilization of commands was ordered by age, with adults and older children issuing them proportionately more frequently than children younger than six. The utilization of information statements was ordered in the opposite direction, more by preschoolers than by adults and older children, and most frequently by the focal child. There were no significant differences

between groups in the proportions of questions. Less frequently occurring speech structures fell broadly into two groups: rebukes and encouragement. There were no significant differences between group means, except in the case of disputes which occurred most frequently in the younger age groups, and were usually over the possession of writing materials.

3.2.2 *Distribution of speech structures among groups*

There was an underlying rank distribution with adults producing a greater proportion of all structures than older children, who in turn produced more than younger children. This broad pattern does however obscure certain interesting features of age/sex roles in the teaching situation.

Mothers and adult females accounted for a significantly larger proportion of total utterances than fathers and adult males on the three major speech structures, namely information, commands and questions. The same rank order held for all of the minor structures (criticisms, threats, disputes, explanations and praise) although the mean differences were not always significant. Among the older children there were comparatively small differences between the sexes for all the structures, and in the case of same-aged children the differences between the sexes were even smaller. It would seem, therefore, that differentiated sex roles with respect to the teaching of children develop with age.

Because older children of both sexes and adult women accounted for over 66% of the utterances in all structures, and 87% in the case of praise, these age/sex categories would appear to be the most important teaching agents in this situation. Within these "teacher" categories there were certain anomalies which were illuminating, particularly in respect of the forms of control that they indicated. Threats, the most powerful type of rebuke, were uttered predominantly by mothers (30%), criticism predominantly by other adult women (23% of criticisms), and disputes — the weakest form of disagreement — predominantly by older girls (30% of all dispute utterances).

3.2.3 *Content analysis*

Table 11 (Appendix) summarizes the major topics dealt with in the home conversations, and gives some examples of the content material within each topic. Bearing in mind the lack of formal education in many of the families, and the absence of reading matter in the homes, it is not surprising that certain topics

which might be considered essential to the introduction of literacy skills to children were omitted or restricted in content. There was no mention in any of the audiotaped sessions of the purpose of learning to read or write except the implied one of preparing the child for school; nor was there any mention that the exercise was a forerunner to the reading and writing of full text. The literacy-related topics were restricted to the more mechanical aspects of handling materials and copying letters, numbers, shapes and words. Within each of these topics the range of content material was restricted: the overwhelming number of conversations about letters dealt with vowels only; in only one instance was a two-digit number mentioned, the best being single digit; the only shape mentioned was a circle. School was presented negatively in the majority of cases; namely as punitive and difficult, a place where failure was common and the anger of teachers was to be feared.

The first task to be accomplished by the group was to induce children to demonstrate their skills to a non-family member: some complied readily, some refused and others, although complying, gave indications of being shy or nervous. In order to establish which age/sex categories were particularly responsible for this task, a count was made for each age/sex category of the number of sessions in which general instructions and exhortations to demonstrate use of the writing materials were given (mothers 9; fathers 3; adult women 11; adult men 0; older girls 8; older boys 2; same-aged girls 1; and same-aged boys 1).

In 42 of the sessions (73%), sufficient rapport was established to allow family and friends to assist the child in using the writing/drawing materials. Of the 195 teaching units identified, classification according to the quality of the information being transmitted revealed that approximately a third of these sequences could be characterized as giving "scaffolding" to the children's learning in the sense of "focusing their attention on relevant and timely aspects of the task and by highlighting things they need to take account of" (Wood, 1986:80):

1. 15,3% positive or negative statements on general performance;
2. 55,9% specific indications of subject matter;
3. 31,8% specific information on how to achieve good performance.

Adults (including parents) issued 47,2% of the teaching units and older children 52,8%, indicating an almost even split between the two age groups. On the other hand females uttered a far larger percentage of teaching speech units (84,1%)

when compared with males (15,9%). Nearly half (48,4%) of all the most detailed teaching speech units (those which gave specific information on how good performance was to be achieved) emanated from older girls as opposed to 22,6% from adult women, indicating that there might be a basic difference in teaching styles between the two age groups. Typically, each participant in the teaching process employed a range of teaching styles over the course of an audiotaped session. Each participant's teaching was classified according to whether or not it contained precise information on how improved performance could be achieved. Older children employed precise teaching strategies in 18 of the 23 sessions in which they taught the 5-year-olds. They differed significantly in this from adults who utilized more precise strategies in only 14 of the 28 sessions where adult teaching took place (chi-square = 4,3, p = 0,038).

3.3 Summary of statistics for each age/sex category

Adult women: A considerable portion of the communication content of the 5-year-old's day was with adult women other than the mother. Their association with the children was chiefly a care-giving one as evidenced by the fact that women other than the child's mother were nominated as primary care-givers in 42,5% of the total sample, and they were frequently close relatives. Under the everyday circumstances in which the observational study took place these older women did not spend a high proportion of the time available conversing with the child. The data reveal their control of the association with the child in the sense that there was a highly significant imbalance in the direction of conversation and the direction of commands. In the audiotaped study they played a prominent role, both in the social problem of getting children to demonstrate their skills to strangers, and in the actual teaching of literacy skills. Their teaching strategies tended to lack the necessary scaffolding for effective teaching and one can speculate that this was a function of their own lack of literacy skills, their responsibility for directing the child rather than conversing with him/her, and the prevailing perceptions of teachers as primarily disciplinarians of the young.

Mothers, by contrast, were not as often present in the everyday life of their children even though they were cited as primary care-givers in over half of the sample. When they were present, however, their communicatory relationship with the child was different from that of other adults, that of the mothers being more reciprocal (Par 3.1.7).

Adult men were present in the vicinity for 35% of the total observational time. As with adult women, the actual/potential speech partnership was low, and the imbalance in direction was marked, more speech being directed to the child than received from the child. Other aspects of their communicatory and teaching relationship are difficult to interpret, probably indicating that the relationship between focal children and adult males was not governed by social roles but by particular circumstances and preferences. For instance, the audiotape data revealed a very low average participation in the teaching situation. Nevertheless, the most carefully explained and lengthy example of teaching a child to write, was given by an adult male.

Overall, adults were present in the vicinity for most of the time (93,1%), and they engaged in 26,94% of the child's conversational interchanges. Their actual:potential speech partner ratio was lower than that of all other age categories, and, with the exception of mothers, the control they exerted over the conversational interchanges was higher than that of all categories of children. The language structure too was more controlling than that exhibited by other age groups: significantly more commands were issued than received. Adults appeared to be less approachable than other age groups: children posed significantly more questions to children than they did to adults. The picture is, however, not consistent with a highly authoritarian communication structure: the number of commands given to the child was balanced with the number of information statements given, and the direction of the information statements was also balanced. In other words, there was a relatively even distribution of commands and information to be found in speech between children and adults, and children were given opportunities to speak **to** adults almost as much as adults spoke to them.

Older girls were present in the vicinity for 27,0% of the observational time; they had a high actual:potential partner ratio, and accounted for 17,5% of the interchanges. These were evenly balanced in direction.

Older boys did not differ from older girls in terms of actual:potential partner ratio, and there was no significant difference in the balance of speech direction to and from the child. They were, however, involved in fewer interchanges than older girls, probably because they were at home less.

It is noteworthy that focal children maintained a reciprocal speech relationship with older children and mothers, probably indicating fewer social constraints between these categories of speech partners. While older children communicated

less with focal children than same-aged children during unstructured everyday activities, they became very much more communicative in the audiotaped study, with older girls in particular emerging as teachers, giving precise and detailed information. The girls frequently guided the focal child's hand in the formation of letters, and observers noted that older girls were often involved in playing "pretend school", where they took the role of teachers, instructing the 5-year-old "pupils" and marking their work. In all, the 5-year-olds received their most sympathetic and encouraging preview of what school would be like from this age/sex class.

Three to five-year-olds were frequently in the vicinity, had the highest actual:potential partner ratio, and accounted for the highest percentage of interchanges. They were significantly more often the recipients of speech from the focal child than they were speakers. This speech dominance by the focal child over children in the same age category may be due to the fact that the focal child was always at the top end of the age range and was more verbally competent on average than speech partners from the 3 to 5-year-old group. It could also indicate an observer effect whereby the focal child feels more confident in the presence of an interested adult. Their participation in the teaching episodes ranged from co-operation and comments on utilizing the writing materials to squabbles over the possession and correct care of such materials.

Babies and toddlers were frequently present but were understandably lower on the actual:potential partner ratio and significantly more often the recipients of speech than they were the speakers. In view of the low conversation potential of these very young children, it is interesting that they accounted for 15,7% of the total speech interchanges, which is probably an indication of the emerging role of the 5-year-old as a care-giver in the home.

4. DISCUSSION

4.1 Summary

Examining the household communication network from the point of view of 5-year-old children has revealed the diversity of communicatory pathways and modes by which socializing information is transmitted to the child, and that the latter differs from the way in which ideas about schooling and literacy are communicated to the child. Quantitatively and qualitatively, age/sex categories communicate differently, and there is a regularity in the differences between

them which is based on seniority and gender. Historical accounts of child-rearing in Southern African societies have noted the existence of social hierarchies based on age and respect for elders, and, in the childhood years, duties of obedience from younger to older children and duties of protection and teaching from older to younger children (for example: Krige & Krige, 1980; Kidd, 1906; Webb & Wright, 1986). Hunter (1964) described one such system amongst Amaponda children before 1936, where "nurses" of seven years of age officiated at meals for younger children and were responsible for the equitable distribution of the food and for punishing bad behaviour in their young charges. We have discussed elsewhere (Liddell, Kvalsvig & Masilela, 1990) that this hierarchical structure had eroded over several generations, the process being accelerated and exacerbated by turmoil over the education system (Chikane, 1986). The evidence of deterioration of the social hierarchy, however, pertains to older children and their parents; the communication network for 5-year-olds described in this study parallels the age-based hierarchy contained in the historical accounts.

There is an age structure in the distribution of controlling statements to the 5-year-olds which is balanced by the teaching and socialization responsibilities of the children from the very age/sex groups which exert the most control. In this account of the dynamics of household communication, adult communication with the focal children is characterized by more power and social distance than the communication from older children. Older children, at school themselves, narrow the social distance between themselves and 5-year-olds in everyday life, and they become intimately involved with them when it comes to teaching literacy skills and attitudes to schooling. They give precise direction, they argue over perfomance and they role-play classroom situations in the context of extended sequences of fantasy play. The focal children themselves issue more controlling statements to younger children than they receive from them, in an apparent continuation of the exercise of control over younger age groups.

The unit of analysis in this study has been age/sex categories of speech partners, and consistencies in the association between the age and sex of the speech partner and the focal child have been taken as evidence for underlying social norms governing the care and teaching of the child in these communities. This choice of unit of analysis has revealed the resilience of an age-stratified communication system with respect to young children. Similarly, the age-based structure of gender-differentiated communication roles with respect to young

children is strikingly apparent, with differences between the sexes in all aspects of communication systematically decreasing as age decreases.

The role of the mother in comparison to that of other adult women in the child's environment has been documented here, more out of a sense of providing a reference point with other studies than as a wholehearted attempt to explicate a kin-based communication structure. In the four communities under study, a comparison of the communicatory characteristics of the mother with those of other adult women provides an example of the way in which kinship interacts with the age/sex category: biological mothers are indistinguishable from others in their age/sex class in some communication measures, but not in others. Whatever the uneven influences of westernization and urbanization in these communities, the mother's status in care-giving, decision-making and control bears little resemblance to the pivotal status which is the norm in Western nuclear families. A study of women's perceptions of childhood illnesses in one of the areas (Kvalsvig, Preston-Whyte & Mtshali, 1991) showed that in several instances it was the child's grandmother who determined when action should be taken and what form it should take even though the mother was the primary care-giver, and the present data show that in over 40% of the households studied the mother was not even the primary care-giver.

As part of a study of theoretical issues in the mother-child transaction, Craig (1985) has reconstructed an "indigenous theory of childhood" from interviews with Zulu mothers. The theory drawn from the mothers' statements gives central place to example and demonstration as the methods by which mothers should teach their children, and conversely, observation and imitation as the methods by which children learn. The content of what mothers should teach was primarily in the realm of conduct or "moral behaviour", while specific skills which mothers should teach were those of self-care and household management.

Parents' responsibilities in the matter of formal education were predominantly financial, although some specific skills such as the formation of letters should be taught. This indigenous theory accords, in many respects, with what we have recorded on the actual teaching of the children by mothers and other adult women, but it omits significant elements in the home-teaching process. The speech structure used by the "teacher" categories in our study contained a high proportion of questions (more than 20% of the speech units for adults and older children). These frequently served as prompts to engage the child in the way that question routines described by Demuth (1986) were utilized to teach language to

younger Basotho children: to see if the child understood and could respond intelligently. This goes markedly beyond explanation and demonstration used as teaching methods. Moreover, the indigenous theory does not lead us to predict the pervasiveness of more diverse and sensitive teaching methods readily employed by older children.

The implications for intervention are considerable. Political debates about the differences in academic achievement between children of different social, economic and cultural backgrounds have a long history both here and in other countries, notably the United States (Wood, 1988). Although a detailed discussion of intervention ethics, goals and strategies is beyond the scope of this paper, some observations arising directly from the data presented here need to be made.

The adults who, through seniority, control much of the socialization information reaching the preschool child, have themselves been poorly equipped to teach literacy skills by the schooling that they have received under a discriminatory education policy in South Africa. Consequently the cycle of poor preparation for schooling and poor academic achievement is extended. This is likely to continue even after the education available to black communities improves, unless programmes are implemented which introduce adults to the purposes and advantages of literacy. Children will continue to come to the first grades of school with expectations based on the experiences of adults in their households and communities: expectations of difficult mechanical processes without value in ordinary life, and of school as a place where the punishments for poor performance are "failure" and beatings. Furthermore, the normal flow of information in the home is upset when the adults who normally hold the most control over young children have to advise and encourage them in unfamiliar literacy and numeracy activities. Under these circumstances adults tend to resort to exhortations and global commands which are not particularly effective in preparing preschoolers for schooling.

Adult literacy classes in these communities could be expected to have benefits which extend beyond the adults who participate in them, to the younger members of their families.

School-aged children involved in learning the mechanics of writing, need reading materials appropriate to their age and interests if they are to perceive the advantages of acquiring literacy skills, and if they are to transmit these ideas to preschoolers. This study has shown the intense involvement of older siblings and

friends in these communities in preparing 5-year-olds for school through participating in their fantasy games of "playing school" as well as by direct instruction.

The aim of this report has been to describe the diversity of influences on children in the home. The analysis demonstrates how children's attitudes to schooling and their skills are shaped in complex ways within the network of family communication. While it is obvious that programmes in preschools and early learning centres which directly assist the child are important, within the home environment different and sometimes opposing messages are being transmitted. Ogbu (1974), in his account of education in a black neighbourhood in the United States, gave a vivid description of the contradictory messages about the value of education which children received from their parents: on the one hand education is "good", but on the other hand, it is a lot of hard work and leads nowhere for black children. The contradictory messages transmitted to the children taking part in the present study were strikingly similar: school is hard and you will be punished for poor performance, but learning to write is "good".

The challenge for those who would improve the chances of school achievement for children such as these is to enhance the effects of direct improvement to their formal education by stimulating the interest and participation of the family members who influence the child.

4.2 General conclusions concerning family life

1. Black South African family life must be conceptualized in terms of a network of familiar adults and peers, not all of whom are kin. The relationships which exist between 5-year-old children and their social networks are governed more by the particular age/gender relationship between the child and its interaction partner, than by the presence or absence of kinship bonds. The age/gender hierarchies that have characterized many African families for generations still appear prevalent. However, there is every possibility that these hierarchies may become less powerful in their influence on children as they mature into adolescence (Chikane, 1986).

2. Mothers are not easily distinguishable from other adult women in their spontaneous contacts with 5-year-old children. Mothers in fact spend less time with their 5-year-olds than do other women. However, their interactions with their children are characterized by greater reciprocity and

less coercion than that of other women. Overall, controlling statements were predominantly made by adults to children, rather than being exchanged among children. Social control appeared to be clearly vested in adults.

3. In spontaneous interactions, peers of the same age comprise the most frequent interaction partners of the 5-year-old. Together these playmates capitalize on most of their opportunities to interact with one another. Older children and adults, on the other hand, capitalize on fewer opportunities for interaction with 5-year-olds, almost certainly because of their extended domestic and other social responsibilities.

4. However, in the standardized school-based task, older children (especially girls) and adults took on a much more opportunistic role in interacting with children. The comparison between this setting and the naturalistic one gave testimony to the importance of context in determining patterns of interaction within a family/neighbourhood network of familiar people. Patterns of interaction, partners in interaction, and content of speech were all quite different in this more formal setting.

5. In terms of quality of instruction in the standardized school-based task, older girls gave the best quality instruction. Since the mean level of education among care-givers averaged four years, the higher quality of instruction from older girls may be attributable to their more advanced levels of education.

6. In all, however, the quality of instruction was limited: the purposes of literacy were never discussed, mechanical processes involved in writing were stressed, and school was portrayed as a negative experience.

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APPENDIX H

Tables 1 - 11

TABLE 1: BIOGRAPHICAL INFORMATION FOR MALES AND FEMALES - MEAN PERCENTAGES, MEANS, AND STANDARD DEVIATIONS (SD)

CATEGORY	BOYS (n = 40)			GIRLS (n = 40)			**K-W STAT
	PERCENTAGE OF RESPONDENTS						
Dwelling	THATCH 38	SHACK 10	BRICK 53	THATCH 36	SHACK 3	BRICK 63	0,43
Books in home	NONE 37	1-2 45	3-10 18	NONE 33	1-2 50	3-10 16	0,02
Newspapers/ magazines in home	NONE 56	1-2 25	3-10 19	NONE 47	1-2 44	3-10 8	0,02
Toys in home	NONE 16	1-2 75	3-10 8	NONE 11	1-2 75	3-10 14	0,86
Water source	RIVER 48	STREET 15	HOME 38	RIVER 35	STREET 25	HOME 40	0,57
Sewerage	NONE 7	LATRINE 69	MAIN 30	NONE 13	LATRINE 30	MAIN 58	0,24
Regular daytime meal	STAPLE 8	PROTEIN 84	BALANCED 8	ST 11	PR 71	BAL 17	0,29
Rely on subsistence economy	OFTEN 27	SOME 27	NONE 46	OFTEN 34	SOME 26	NONE 40	0,42
Family size (n) SD	7,54 (mean) (3,67)			7,77 (mean) (3,22)			0,44
Number of workers in household	1,14 (1,05)			1,41 (0,59)			1,35

* $p < 0,05$ (No significant differences)
** Kruskal-Wallis statistic

TABLE 2: BIOGRAPHICAL INFORMATION FOR MALES AND FEMALES (continued) - MEAN PERCENTAGES, MEANS, AND STANDARD DEVIATIONS (SD)

CATEGORY	BOYS (N = 40)			GIRLS (n = 40)			**K-W STAT
	PERCENTAGE OF RESPONDENTS						
Highest education in family		6.57yrs			7.22 yrs		0,99
		(3.04)			(3.16)		
	MOTHER	GRAN	OTHER	MOTHER	GRAN	OTHER	
Primary care-giver (%)	53	23	25	63	23	15	1,13
Education primary care-giver		3.42 yrs			4.50 yrs		1,81
		(3.43)			(3.47)		
Age primary care-giver		38.81 yrs			36.18 yrs		
		(15.90)			(14.86)		0,88

* $p < 0,05$ (no significant differences)
** Kruskal-Wallis statistic

TABLE 3: INTERACTION PARTNERS AS A PERCENTAGE OF TOTAL TIME CHILDREN WERE OBSERVED - MEANS, (SDs), AND GENDER DIFFERENCES

SUBCATEGORY	% OF TIME		F
	GIRLS	BOYS	
Adult females	8,88 (7,21)	7,17 (5,93)	1,43
Adult males	1,39 (1,89)	1,93 (1,95	1,52
Older female children	11,26 (15,71)	5,98 (7,93)	3,60
Older male children	3,15 (8,41)	9,27 (9,15)	9,70*
Same-age female children	16,92 (17,82)	7,41 (11,29)	8,13*
Same-age male children	7,74 (10,64)	11,95 (13,66)	2,37
Younger female children	6,37 (9,13)	6,35 (13,24)	0,00
Younger male children	5,26 (11,94)	2,20 (3,28)	2,44
Mixed groups of females	0,78 (3,05)	0,00 (0,25)	2,19
Mixed groups of males	0,06 (0,25)	1,41 (4,68)	3,32
Mixed groups of both sex	8,34 (12,09)	7,15 (9,09)	0,22
Mean group size	2,89 (0,95)	2,75 (0,62)	0,46
Mean number of children in proximity	1,43 (0,86)	1,21 (0,86)	0,97
Mean number of adults in proximity	0,42 (0,26)	0,52 (0,52)	0,75

Subcategories are not mutually exclusive and therefore do not add up to 100 %.

* $p < 0,05$

TABLE 4: PARTNERS* WHO INTERACTED WITH PRESCHOOL CHILDREN DURING EDUCATIONAL ACTIVITIES

PARTNER	% OF TIME SPENT WITH CHILD DURING EDUCATIONAL ACTIVITIES
Mother	1,50
Other adult females	2,67
Adult males	2,16
Older females (6-16 years)	18,41
Older males	10,57
Same-aged females (3-5 years)	15,96
Same-aged males	22,97
Younger females (0-2 years)	6,17
Younger males	1,22

* Several minor categories are not reported here.

TABLE 5: STUDY 1: MOTHER COMPARED WITH OTHER CATEGORIES OF SPEECH PARTNERS

	Mother	AGE/SEX CATEGORY							
		Age > 16		Age 6-16		Age 3-5		Age 0-2	
		Female	Male	Female	Male	Female	Male	Female	Male
Potential partner									
Mean	23,1	77,8	35,0	27,0	19,9	28,6	25,9	28,4	23,4
SD	(31,4)	(24,2)	(28,3)	(29,3)	(25,7)	(31,7)	(31,5)	(32,7)	(33,3)
Rank	8	1	2	5	9	3	6	4	7
Actual: Potential ratio									
Mean	0,286	0,183	0,272	0,706	0,674	1,043	0,753	0,287	0,260
SD	(0,359)	(0,159)	(0,578)	(0,730)	(0,954)	(1,382)	(0,518)	(0,424)	(0,398)
Rank	9	9	7	3	4	1	2	5	8
Actual partner interchange									
Mean	5,4	14,8	6,8	17,5	12,7	22,8	18,5	8,8	6,2
SD	(8,6)	(14,2)	(9,4)	(21,3)	(16,7)	(25,0)	(21,9)	(15,6)	(12,7)
Rank	9	4	7	3	5	1	2	6	8
Speaker									
Mean	2,7	10,5	5,7	8,5	6,3	10,3	8,7	3,5	2,7
SD	(4,3)	(11,2)	(8,6)	(10,5)	(8,3)	(11,4)	(10,8)	(6,0)	(5,5)
Rank	8	1	6	4	5	2	3	7	9
Recipient									
Mean	2,7	4,3	1,1	9,0	6,4	12,5	9,8	5,3	3,6
SD	(4,8)	(5,3)	(2,3)	(11,3)	(8,8)	(13,7)	(11,4)	(10,9)	(7,3)
Rank	8	6	9	3	4	1	2	5	7

Potential : Time in the vicinity as a percentage of total observation time.
Actual : Speech as a percentage of total speech.

TABLE 6: STUDY 1: MEAN DIFFERENCES IN DIRECTION OF INTERCHANGES BETWEEN FOCAL CHILD AND ALL AGE/SEX CATEGORIES

AGE/SEX CATEGORY	SPEAKER-RECIPIENT MEAN PERCENTAGE OF TOTAL SPEECH (STD ERROR) n = 80					
	ALL SPEECH		COMMANDS		INFORMATION	
Mother	0,021	(0,318)	1,005**	(0,250)	-0,431	(0,263)
Adult female	6,238**	(1,156)	2,408**	(0,291)	0,495	(0,255)
Adult male	4,587**	(0,937)	0,485	(0,348)	-1,614**	(0,376)
6-16 female	-0,482	(0,514)	0,620*	(0,132)	0,132	(0,224)
6-16 male	-0,013	(0,444)	0,677**	(0,132)	-0,184	(0,228)
3-5 female	-2,221**	(0,432)	-1,480**	(0,234)	-0,295	(0,266)
3-5 male	-1,115*	(0,351)	-1,060**	(0,233)	0,274	(0,215)
0-2 female	-1,841*	(0,924)	-0,976**	(0,208)	-0,208	(0,163)
0-2 male	-0,877*	(0,266)	-0,767**	(0,182)	-0,300*	(0,131)

H_o: $\mu_D = 0$ where D = Speaker-Recipient
* t test $p < 0,05$
** t test $p < 0,001$

TABLE 7: STUDY 1: COMMANDS AND INFORMATION STATEMENTS RECEIVED FROM EACH AGE/SEX CATEGORY OF SPEECH PARTNER, AND THE MEAN DIFFERENCE BETWEEN THEM

Age/Sex category	Information		Commands		Information-Commands	
	Mean	(SD)	Mean	(SD)	Mean	(SD)
Mother	2,515	(4,291)	1,602	(2,712)	-0,261	(0,192)
>16 female	5,231	(6,119)	3,196	(3,307)	0,060	(0,331)
>16 male	1,283	(1,785)	0,956	(3,057)	-0,125	(0,268)
6-16 female	7,105	(8,227)	3,471	(3,961)	-1,573*	(0,350)
6-16 male	5,267	(6,641)	2,572	(3,384)	0,917*	(0,291)
3-5 female	9,084	(10,649)	4,207	(5,119)	3,031*	(0,456)
3-5 male	7,756	(9,654)	3,279	(3,708)	2,906*	(0,473)
0-2 female	2,494	(4,822)	1,927	(3,425)	0,668*	(0,200)
0-2 male	1,997	(4,900)	1,204	(2,211)	0,630	(0,226)

$H_o: \mu_D = 0$ where D = Speaker-Recipient
n = 80
* t test $p < 0,01$

TABLE 8: STUDY 1: PREFERENCE FOR SPEECH PARTNER OF OWN SEX IN EACH AGE CATEGORY

Age/Sex category of speech partner	Sex of focal child				Univariate test	
	Female		Male		F	P
	Mean	(SD)	Mean	(SD)		
>16 female	20,87	(14,47)	19,48	(13,14)	1,57	0,2135
>16 male	5,05	(7,89)	8,49	(10,59)		
6-16 female	20,53	(23,89)	14,51	(17,29)	11,58	0,0011
6-16 male	5,48	(12,67)	19,92	(18,09)		
3-5 female	29,64	(26,13)	15,99	(21,98)	5,94	0,0171
3-5 male	15,12	(22,37)	21,88	(21,21)		

H_o: $\mu_D = 0$ where D = Speaker-Recipient
Test for no overall sex effect: n = 60, Wilks' Lambda = 0,822, F = 5,48, p = 0,0018.

TABLE 9: STUDY 2: PARENTS COMPARED WITH OTHER CATEGORIES OF SPEECH PARTNERS

	Father	Mother	Age/Sex category							
			Age >16		Age 6-16		Age 3-5		Age 0-2	
			F	M	F	M	F	M	F	M
% of sessions present	5,3	40,4	61,4	15,8	45,6	40,4	22,8	36,8	7,0	10,5
Rank	10	3,5	1	7	2	3,5	6	5	9	8
Observational study										
Speech units/person										
Mean	10,3	15,1	12,2	7,6	18,5	19,9	12,3	10,0	10,2	6,3
SD	(4,7)	(16,1)	(16,5)	(5,6)	(13,7)	(40,8)	(11,7)	(8,8)	(9,8)	(4,4)
Rank	6	3	5	9	2	1	4	8	7	10
Audiotaped sessions										
Speech units/session										
Mean	0,5	6,1	7,8	1,2	8,7	7,8	2,8	4,5	0,9	0,7
SD	(2,5)	(12,5)	(14,6)	(3,5)	(17,1)	(26,5)	(7,4)	(13,7)	(5,5)	(2,4)
Rank	10	4	3	7	1	2	6	5	8	9

TABLE 10: STUDY 2: CHARACTERISTIC LANGUAGE COMPONENTS

LANGUAGE COMPONENT	SPEAKER					
			AGE GROUP			
	FOCAL CHILD	ALL OTHERS	>16	6-16	3-5	0-2
Major components						
Commands	11,1	36,9	46,0	36,2	20,9	14,7*
Information	52,5	26,8	21,6	24,9	47,3	37,5*
Question	19,7	19,7	21,6	25,7	19,6	27,2
Reprimands						
Criticism	1,3	1,6	1,5	1,0	2,1	0,0
Threat	1,6	1,4	1,5	0,8	0,3	1,1*
Dispute	12,2	5,5	3,2	6,6	8,6	16,8
Encouragement						
Explanation	1,0	1,8	1,6	1,9	0,6	1,4
Praise	0,6	3,0	3,1	2,8	0,7	1,4

Each component expressed as a percentage of total utterances for that age group.

$H_o: \mu_{A1} = \mu_{A2} = \mu_{A3} = \mu_{A4} = \mu_{A5}$ Where A1: focal child
A2: age >16
A3: age 6-16
A4: age 3-5
A5: age 0-2

* $p < 0,05$ Duncan Multiple Range Test

TABLE 11: STUDY 2: THE TOPICS DISCUSSED IN THE AUDIOTAPED TEACHING SESSIONS

TOPIC	N OF SESSIONS	CONTENT
Drawing	35	People, vehicles, animals, insects, houses, furniture, flowers and fruit, tape recorder, clothes.
Writing	33	Writing skills generally.
Writing letters	25	Chiefly vowels.
Writing words	8	A few simple words and names (*Ima, Sele*).
Writing numbers	13	With one exception, single digits, often out of order. Counting was mentioned twice, and sums once.
Making shapes	10	Circles only.
Colours	10	Only the colour of the crayon and not the colour of the object being drawn.
Page layout	10	Starting on the first page and working through, filling the sheet, finding space, rulers and margins.
Neatness	6	Simple mention, no discussion.
Materials		
Rough handling	12	Injunctions against dirtying the book or losing or breaking the pencils.
Quality	11	Usually remarks about the lasting quality of the coloured pencils.
Possession/sharing	29	A large proportion of utterances concerned negotiations amongst children over possession and sharing. Adults sometimes used removal of the materials as a threat to enforce good behaviour.
School	12	Mainly negative comments implying difficulty of the work and frequent punishment. The only positive comments were from older girls and reflected pride in drawing and writing skills learnt at school.

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